

June 27, 2003  
GT64C-5407-JWH

RECD  
JUL 18 2003  
RCAP



Mr. Patrick Quinn  
Hazardous Waste Program  
Missouri Department of Natural Resources  
1738 East Elm Street  
Jefferson City, Missouri 65101

RE: Additional investigation to complete the RFI for the Boeing Hazelwood facility; Permit #MOD000818963.

Encl: Statement of work, supplemental Investigation to the Environmental Field Investigation for Boeing Tract I North and South (3 copies)

Dear Mr. Quinn;

As requested in your letter of June 26, 2003, we are providing you with a revised work plan addendum for the completion of the RCRA Facility Investigation. This work plan addresses the specific comments outlined in your letter and sets forth the investigation activities that will be performed.

To address your general comments, data and information for areas of concern, not associated with solid waste management units, on the Tract I North and South properties will be integrated into a comprehensive, site wide RFI Report. Where possible, contour maps will be drawn for the contaminants of concern. Split sampling analytical data provided by the Airport Authority as part of the Tract I South investigation will be included in the final RFI report. A discussion of the UST's will also be included in the RFI report.

Information generated by the U.S. Army Corps of Engineers will be used to update the relevant geologic/hydrogeologic sections of the RFI report. Water elevations in the deep wells on the SLAPS Site and the Boeing Site were measured on the same day to develop a better depiction of deep groundwater flow direction across a broader area. This information will be presented to you in a separate letter.



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Page 2

27 June 2003  
GT64C-5407-JWH

Well construction information for all monitoring wells will be provided as part of the RFI Report. A survey of the monitoring wells associated with the former UST's will be conducted again to further assess the presence/absence of LNAPL.

We plan to begin the sampling activities on June 30, 2003. Please contact Bryan Kury or me should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Joe Haake". The signature is fluid and cursive, with the first name "Joe" written in a stylized, looped manner.

Joseph W. Haake, Group Manager  
Environmental and Hazardous Materials Services  
Dept. GT64C, Bldg. 220, Mailcode S221-1400  
(314) 232-6941

Cc: Mr. Jeremy Johnson, U.S. EPA Region VII  
Ms. Joletta Golik, Airport Authority

**Statement of Work**  
**Supplemental Investigation to the Environmental Field Investigation**  
**for Boeing Tract 1 North and South**

Per the comments prepared by the Missouri Department of Natural Resources (MDNR) for the above referenced site, the following supplemental investigation activities will be performed.

The supplemental work proposed will be conducted in accordance with the Environmental Field Investigation Statement of Work (SOW) dated September 27, 2002 and the Addendum to the SOW dated November 1, 2002. A deviation from this SOW is that the fixed laboratory will utilize Method OA-1 for total petroleum hydrocarbon (TPH) instead of the TPH DRO method. A summary of the laboratory methods follows:

A mobile laboratory will be used for on-site analysis of a majority of the soil and groundwater samples collected during the supplemental investigation. The samples will be analyzed by the mobile lab for volatile organic compounds (VOCs) and TPH. The mobile lab will use the following analysis methods:

VOCs	Method 8021
TPH	Method modified 8015
BTEX	Method 8020

Samples not analyzed by the on-site laboratory will be analyzed by a fixed lab. Analytical methods used by the fixed lab will be:

VOCs	Method 8260
TPH	Method OA-2
BTEX	Method OA-1

**Jet Fuel Hydrant Line Area (UST Sites #2 and #4)**

A total of five shallow soil borings/temporary piezometers will be installed at the Jet Fuel Hydrant Line Area and groundwater samples will be collected from two existing monitoring wells (MW-A23 and MW-A15).

One boring will be placed at the northern end of the area, between Buildings 45 and 48; two borings will be placed south of Building 42 at the south end of the area; one boring will be placed east of the pipeline, between Buildings 45 and 42 or inside of Building 42 (depending on access limitations); and one boring will be located downgradient of the abandoned jet fuel hydrant line in the parking lot north of Building 42. Boring locations are shown on Figure 1. Soil and groundwater collected from these borings and monitoring wells will be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) and TPH by Methods OA-1 and OA-2.

**Building 51**

Two shallow soil borings/piezometers will be installed to the west of former Building 51. One boring will be placed at the northwestern corner of Tract 1 South, adjacent to the underground water and natural gas pipelines along the south edge of Banshee Road. Soil and water collected from this boring will be analyzed for BTEX and TPH by Methods OA-1 and OA-2. A second boring will be placed west of Building 51, near the former location of a 6,000-gallon solvent UST (Tank B32). Soil and water collected from this boring will be analyzed for BTEX and TPH by Methods OA-1 and OA-2 and VOCs by Method 8021.

### **Former Drum Storage Area adjacent to Building 41**

In order to delineate the extent of 1,4-dioxane impact, one additional shallow soil boring/piezometer will be installed. This boring will be located inside Building 2, to the east of Borings B2W1 and B2I1 (Figure 1). The soil and water samples collected from this boring will be analyzed for VOCs (including 1,4-dioxane) by Method 8260.

To delineate VOC impact to the deep groundwater, two additional deep borings will be completed in the Area downgradient of the deep boring in which tetrachloroethene (PCE) was detected (B41S3D). One boring will be completed near the west edge of Building 2, directly east of Boring B41S3D. The second boring will be placed southeast of Boring B41S3D (Figure 1). Since soil sampling/classification to the top of bedrock was conducted during the previous investigation at the Area, the deep soil borings will be pushed to refusal without collection of soil samples using the dual tube probing system identified in the SOW.

These two borings will be completed as piezometers in order to refine the groundwater flow gradient and to assess groundwater for constituents of concern. To avoid the potential for cross contamination, the small diameter piezometers will be installed using a direct push hydraulic boring machine. A variance will be obtained from the MDNR Geological Survey for the installation of small diameter piezometers. The piezometers will allow for the collection of groundwater samples and water level measurements. A detailed installation procedure for the deep piezometers is presented in Attachment 1.

### **Former Refueling Station West Building 2**

One shallow soil boring/piezometer will be installed immediately to the southeast of the reported location of a refueling station situated between Buildings 42 and Building 2 (Figure 1). Soil and water collected from this boring will be analyzed for BTEX and TPH by Methods OA-1 and OA-2.

### **UST Site #3**

Four existing monitoring wells (MW-3B, MW-A3, MW-A17, and MW-A18) will be sampled for BTEX and TPH by Methods OA-1 and OA-2. Locations of the wells to be sampled are presented on Figure 2.

### **USTs Buildings 1, 2**

Two soil borings will be placed downgradient of the former USTs at Buildings 1 and 2. One boring will be located near the southwest corner of Building 1, near the location of two former 500-gallon gasoline USTs (B20 and B21). A second boring will be installed north of Building 3, east (downgradient) of USTs B22-23. Boring locations are presented on Figure 3. Soil and water collected from these borings will be analyzed for BTEX and TPH by Methods OA-1 and OA-2.

### **UST B24 East Building 2**

One soil boring will be placed downgradient of the former 1,000-gallon gasoline/diesel UST (B24) at the east side of Building 2 (Figure 3). Soil and water collected from this boring will be analyzed for BTEX and TPH by Methods OA-1 and OA-2.

### **Industrial Sewer**

Two soil borings/temporary piezometers will be installed adjacent to industrial sewer lines located on the west parking lot of Tract 1 North, northwest of Monitoring Well MW6. Boring and sewer locations are presented on Figure 4. Soil and groundwater collected from these borings will be analyzed for VOCs by Method 8260.

### **Building 27**

Two soil borings/temporary piezometers will be installed adjacent to machine pit sumps inside Building 27 to provide a more complete spatial distribution of sampling locations within the

building. The actual locations are to be determined, pending an inspection of the facility with the current owner, GKN. Soil and groundwater collected from these borings will be analyzed for VOCs by Method 8260.

**Coldwater Creek**

One sediment sample will be collected from the western bank of Coldwater Creek midway between the daylighting of the Creek from the Airport and the GKN (former Boeing) outfall. The sediment sample will be collected from just below the normal water line and analyzed for VOCs by Method 8260, 8 RCRA Metals by Methods 6010B, 7470A, 7471A, and polynuclear aromatic hydrocarbons (PAHs) by Method 8310.

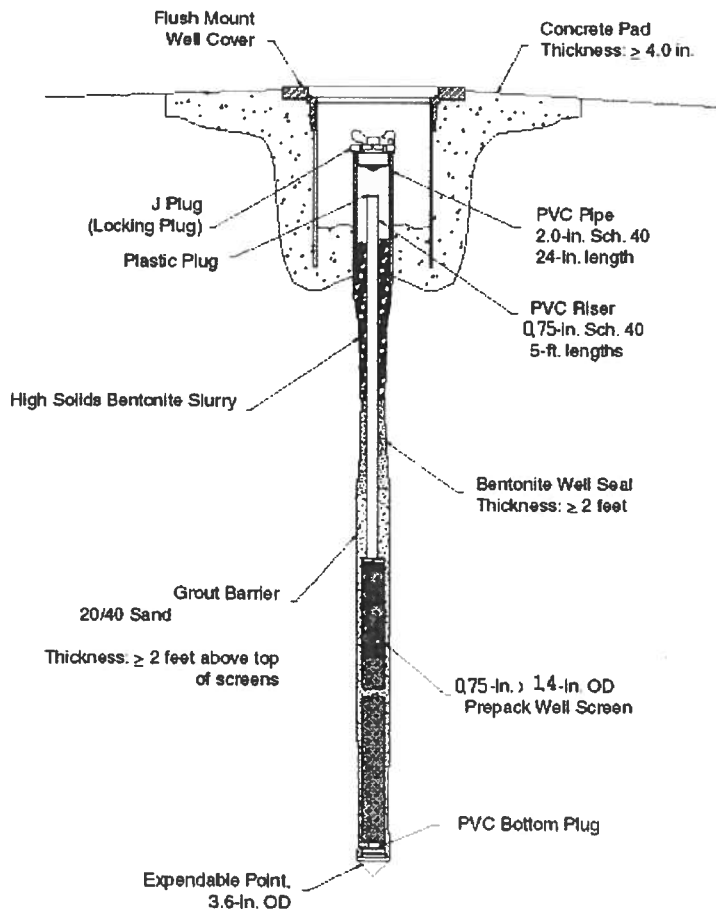
**Attachment 1**  
**Statement of Work**  
**Supplemental Investigation to the Environmental Field Investigation**  
**for Boeing Tract 1 South Property.**

**Proposed Deep Piezometer Installation Procedure**

Probe rods [2.125-inch outside diameter (OD)] with an expendable drive point will be driven to refusal on bedrock (approximately 80 feet below ground surface). Soil samples will not be collected.

Prepack well screen, 1.4 inches OD [0.75 inches inside diameter (ID)] will be lowered into the probe rod string with threaded PVC riser pipe (0.75 inches ID). The prepack screen monitoring wells have an inner factory-slotted PVC screen with 0.010 in. slots. An outer screen constructed of stainless steel wire cloth retains the filter media in place and provide strength to the assembly as the screen is installed to construct the monitoring well.

Once the well assembly is lowered to the bottom of the probe rod string, the probe rods will be retracted to a point above the screen. A sand barrier consisting of fine-grade sand will be gravity fed through the rod annulus to a point directly above the well screen to prevent grout from entering the screens. With the barrier in place, bentonite slurry will be installed in the annulus to form a well seal. A watertight flush mount well box with a one foot skirt set into concrete will complete the well at the surface. Following installation, the elevation of the top of each piezometer casing will be surveyed. A schematic drawing of the proposed piezometers is presented below:







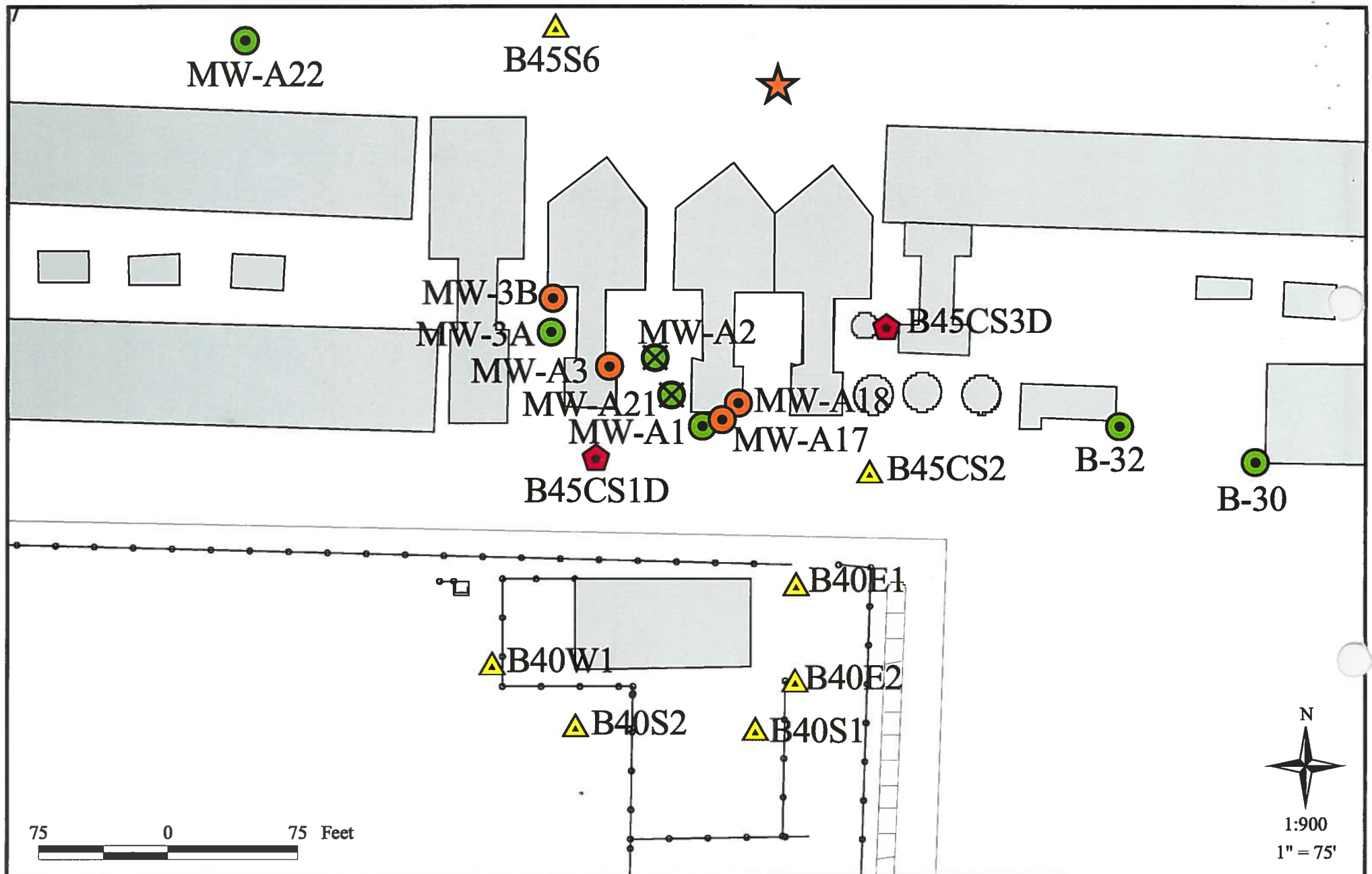
Drawn: EJW

**Q.A.:**

**Reviewed:**

6/27/2003

**Figure 1:  
Proposed Boring Locations  
Building 51, Jet Fuel Hydrant Line Area,  
Building 2, and Former Refueling Station  
Boeing Tract 1 South**



#### Legend

- |                   |                        |                            |
|-------------------|------------------------|----------------------------|
| Shallow Well      | Boring                 | Proposed Shallow Boring    |
| Intermediate Well | Abandoned Shallow Well | Shallow Well to be Sampled |
| Deep Well         | Deep Boring            |                            |

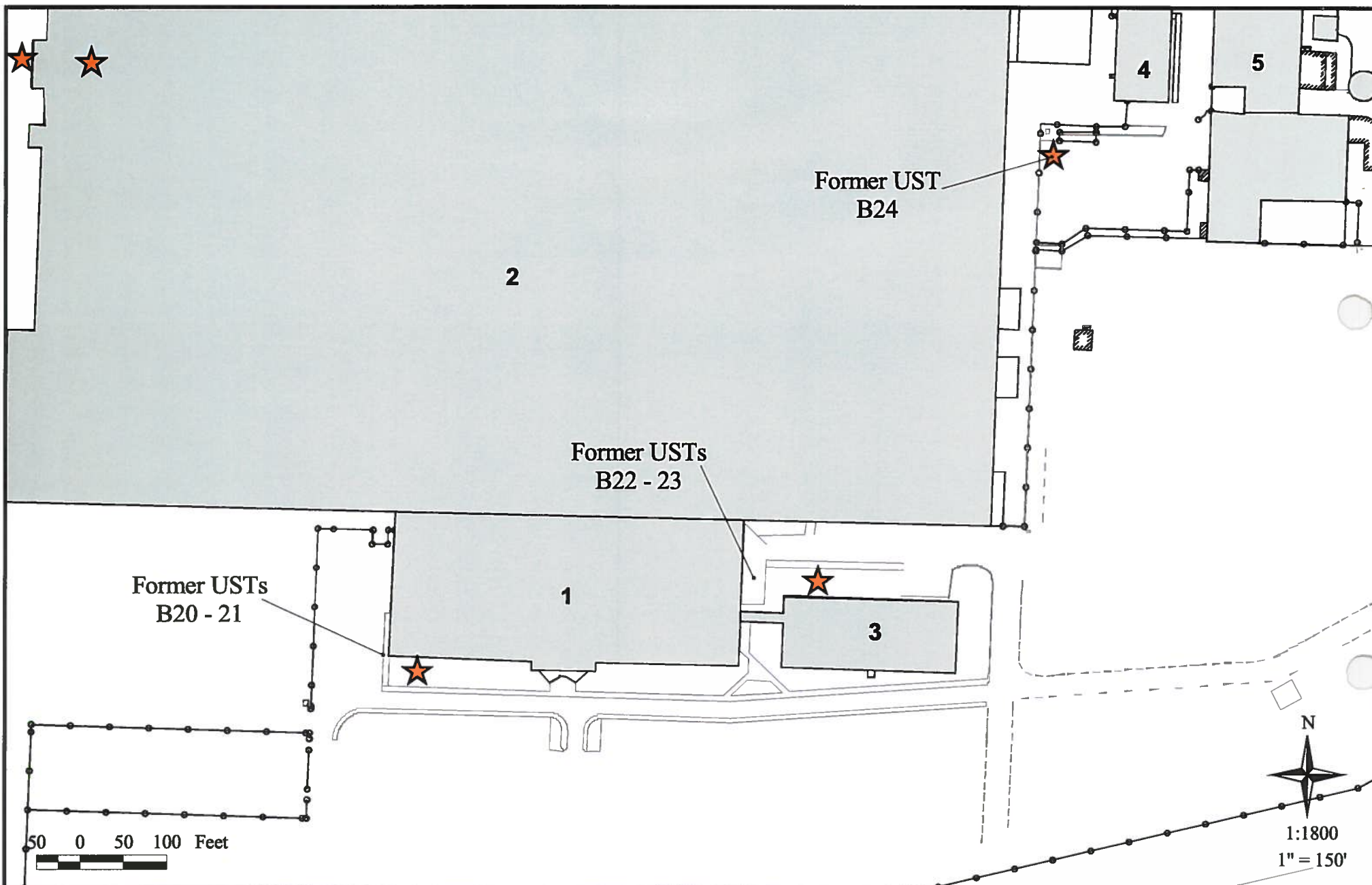


**MACTEC, Inc.**

Drawn: EJW Q.A.: Reviewed: 6/27/2003

**Figure 2:**  
Proposed Sampling Locations  
UST Site #3  
Boeing Tract 1 South





#### Legend

- |                   |             |                         |
|-------------------|-------------|-------------------------|
| Shallow Well      | Boring      | Abandoned Shallow Well  |
| Intermediate Well | Deep Boring | Proposed Shallow Boring |
| Deep Well         | Piezometer  |                         |



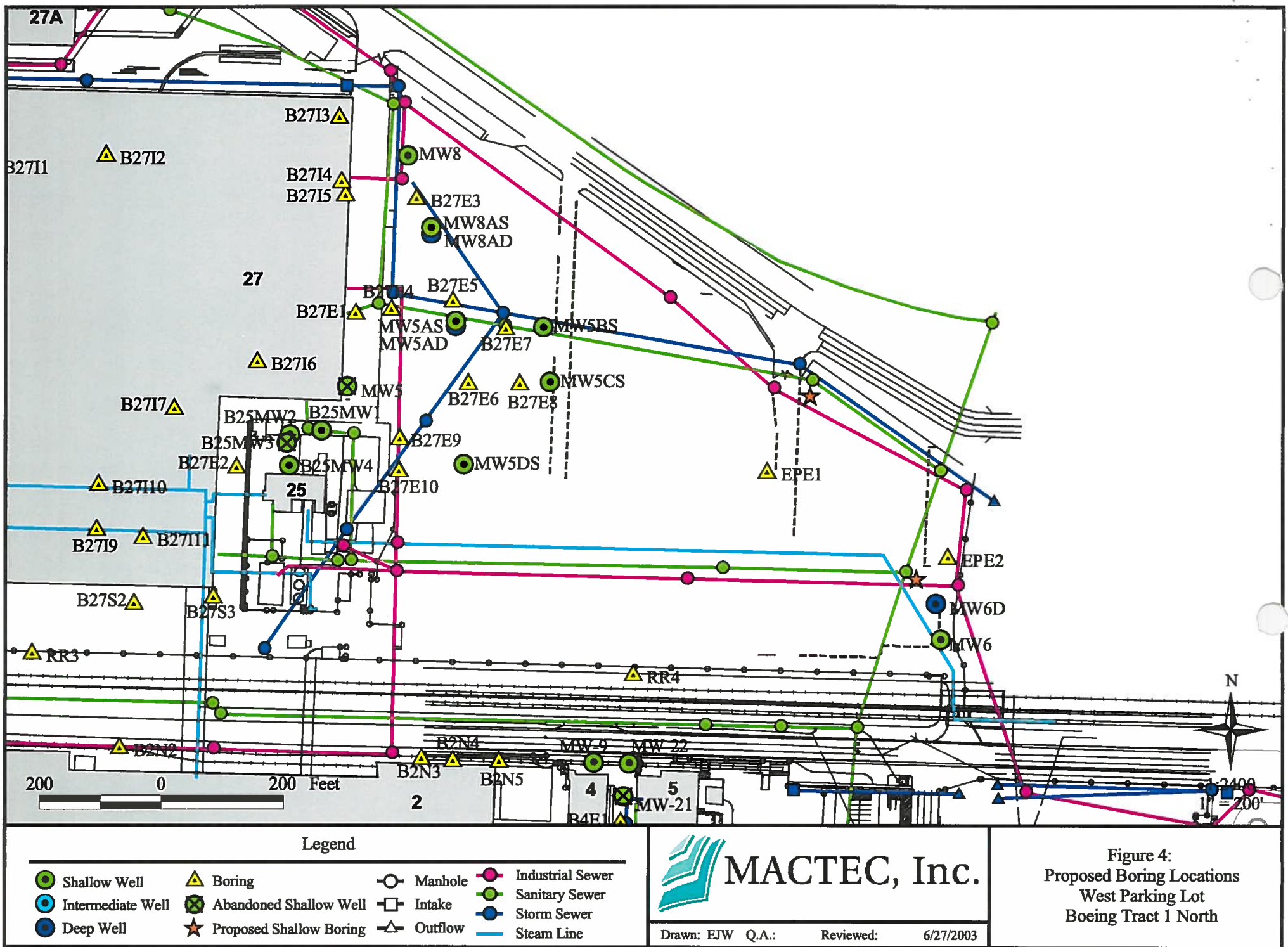
**MACTEC, Inc.**

Drawn: EJW Q.A.:

Reviewed:

6/27/2003

**Figure 3:**  
Proposed Soil Boring Location  
Buildings 1 & 2  
Boeing Tract 1 South



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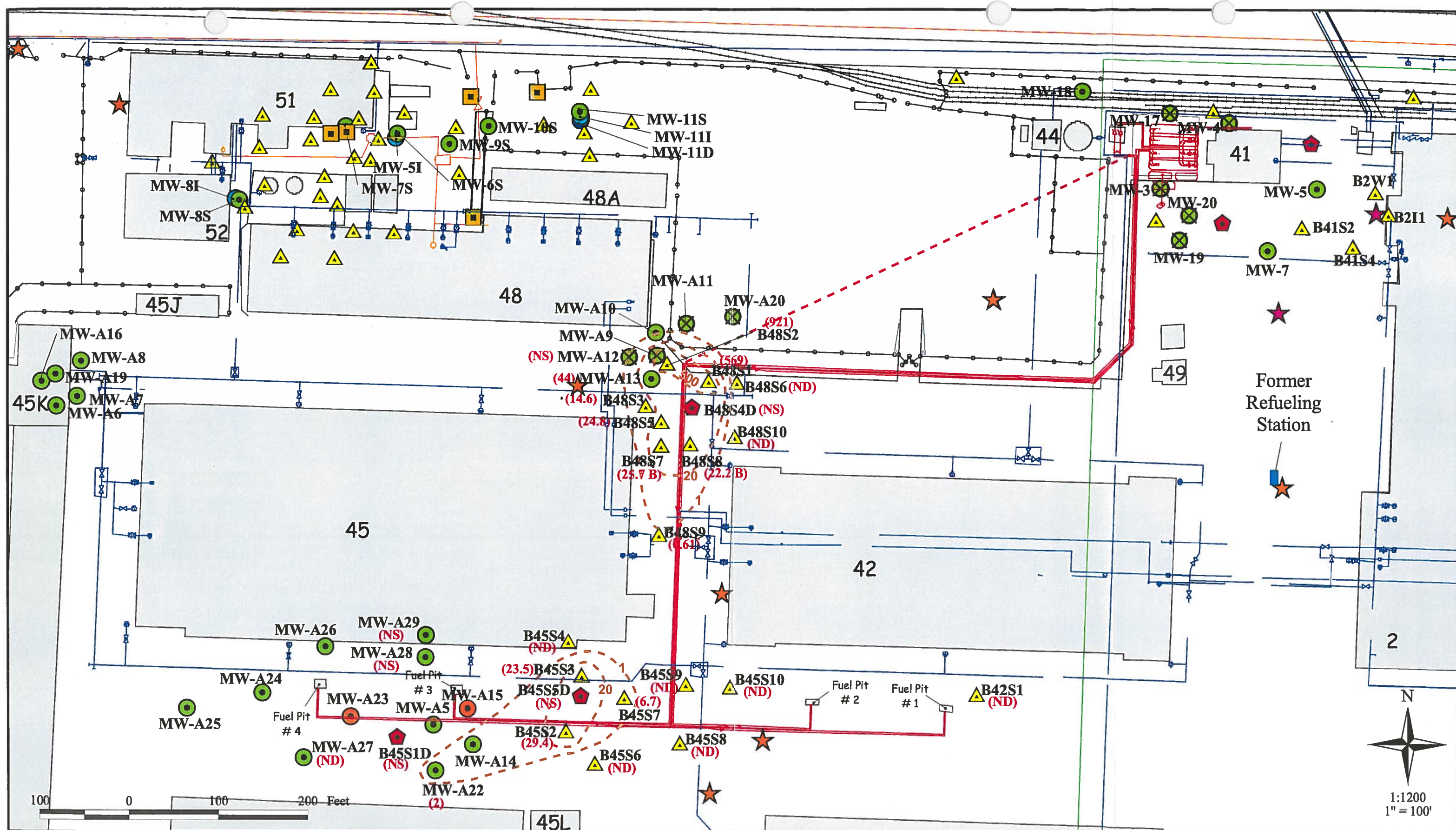
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# Legend

- |                     |                              |                                     |   |
|---------------------|------------------------------|-------------------------------------|---|
| ● Shallow Well      | ▲ Boring                     | — Jet Fuel Hydrant Line             | --- Benzene Isoconcentration Line (micro-g/L) |
| ● Intermediate Well | ★ Deep Boring                | — Water Line (Fire)                 | ⊙ Identification Number                       |
| ● Deep Well         | ★ Proposed Shallow Boring    | — Natural Gas Line                  | (Benzene Concentration micro-g/L)             |
| ⊗ Abandoned Well    | ★ Proposed Deep Piezometer   | — Storm Water Line                  | NS = Not Sampled                              |
| ■ Piezometer        | ● Shallow Well to be Sampled | --- Abandoned Jet Fuel Hydrant Line | ND = Not Detected                             |



MACTEC, Inc.

Drawn: EJW

Q.A.:

Reviewed:

6/27/2003

Figure 1:  
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Building 51, Jet Fuel Hydrant Line Area,  
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Boeing Tract 1 South



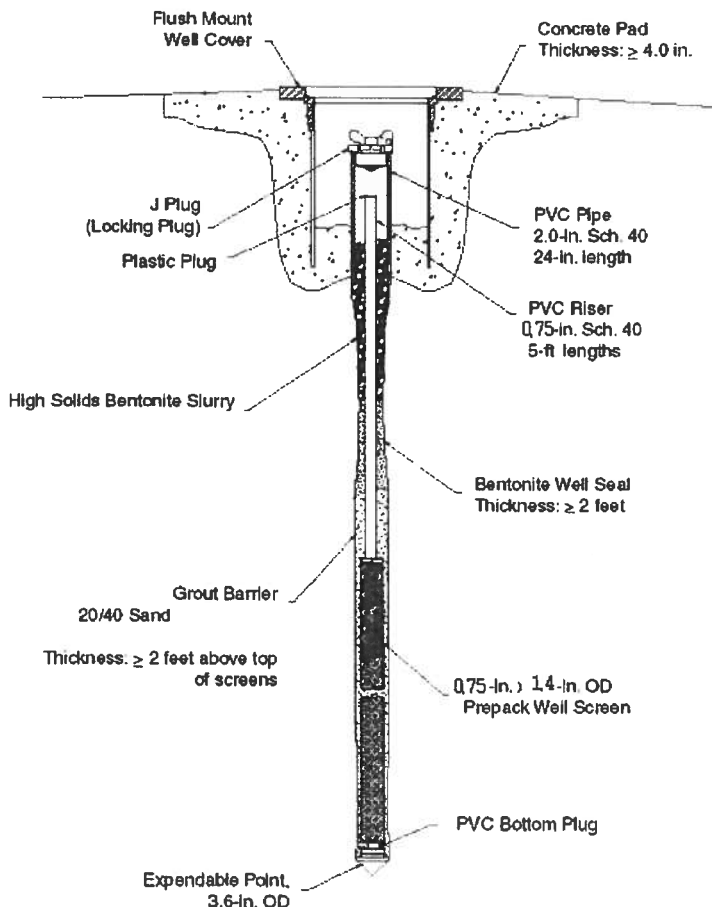
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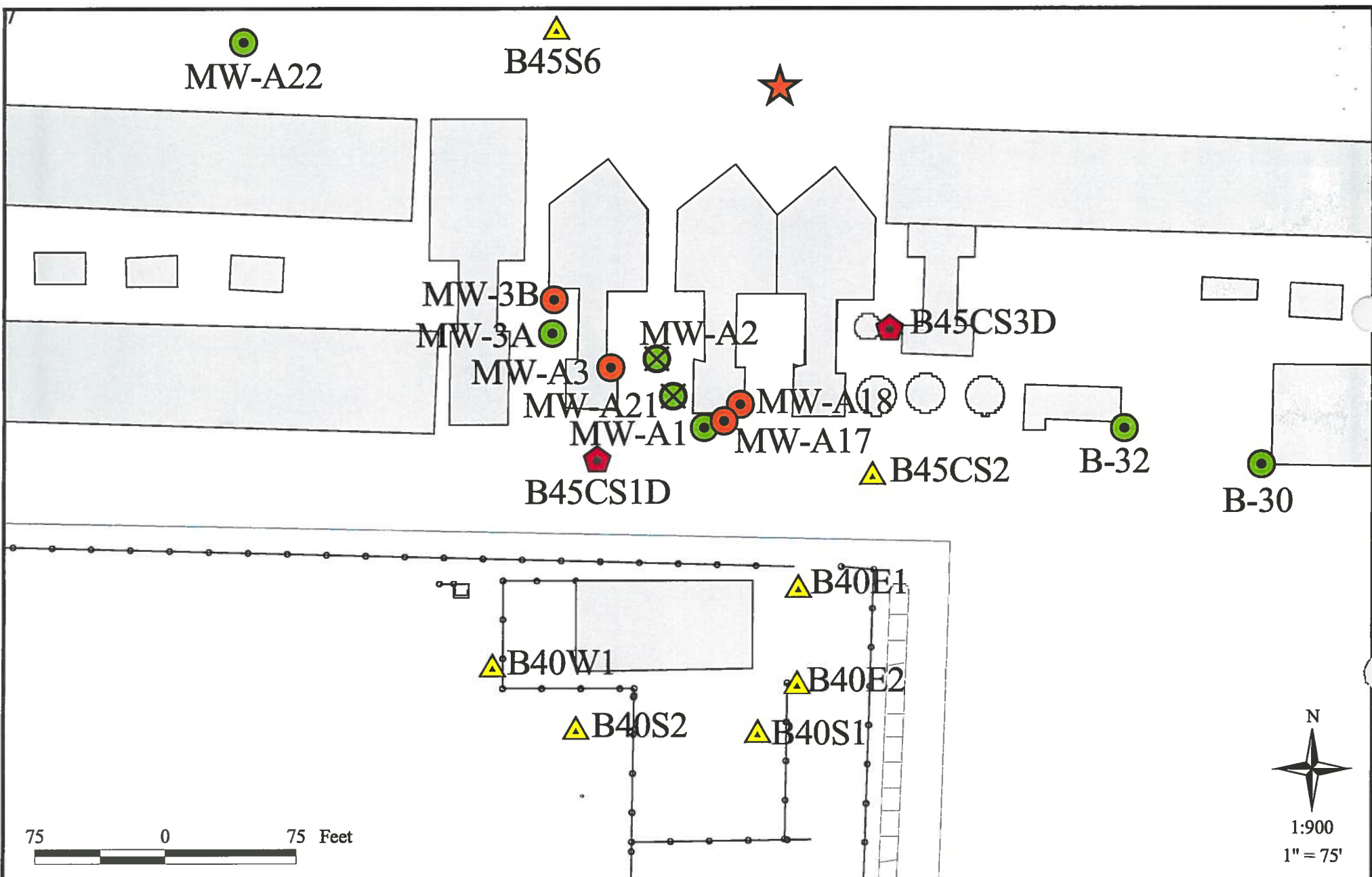
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#### Legend

- |                   |                        |                            |
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| Deep Well         | Deep Boring            |                            |



**MACTEC, Inc.**

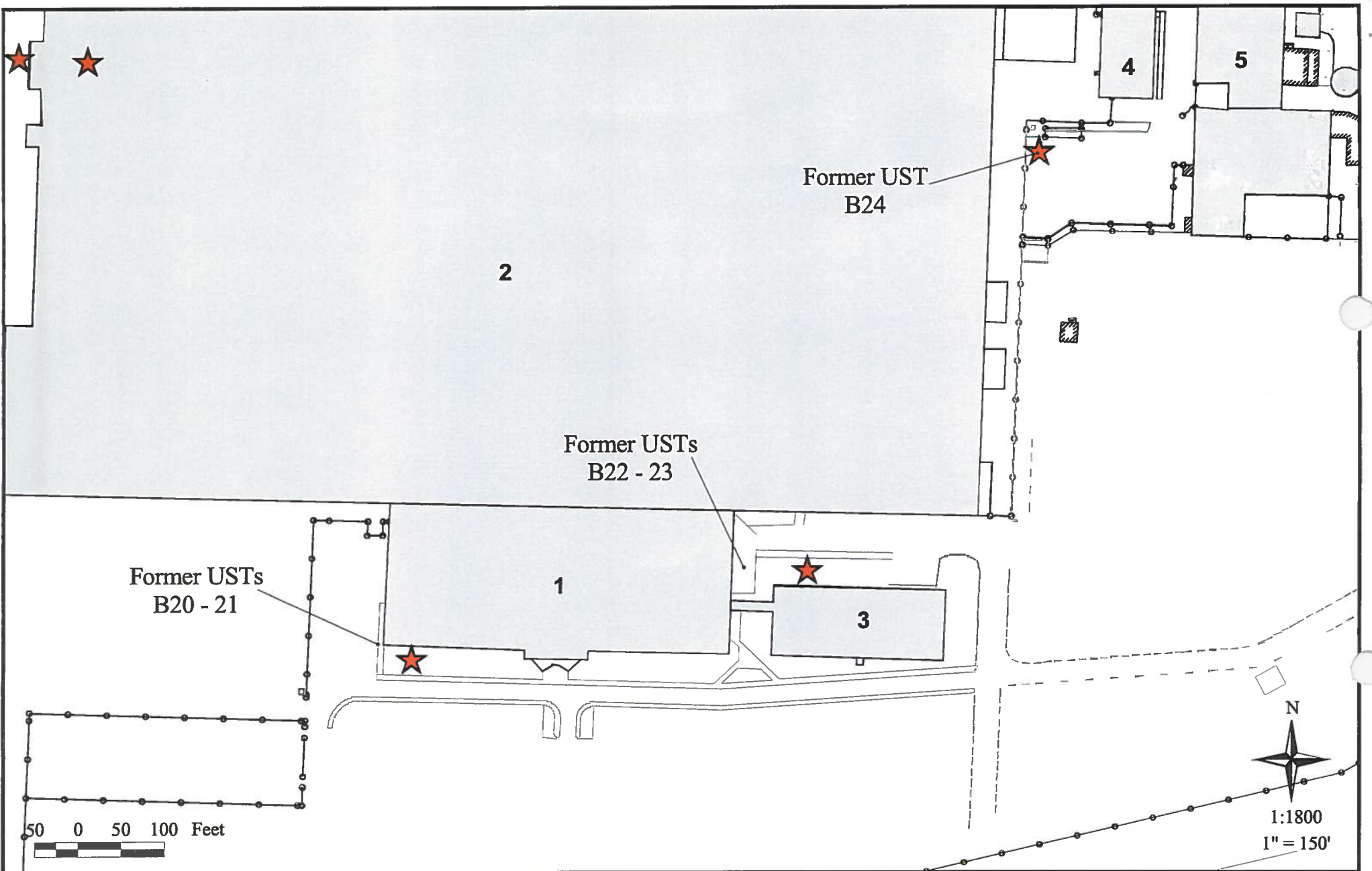
Drawn: EJW

Q.A.:

Reviewed:

6/27/2003

**Figure 2:**  
Proposed Sampling Locations  
UST Site #3  
Boeing Tract 1 South



#### Legend

- |                   |             |                         |
|-------------------|-------------|-------------------------|
| Shallow Well      | Boring      | Abandoned Shallow Well  |
| Intermediate Well | Deep Boring | Proposed Shallow Boring |
| Deep Well         | Piezometer  |                         |



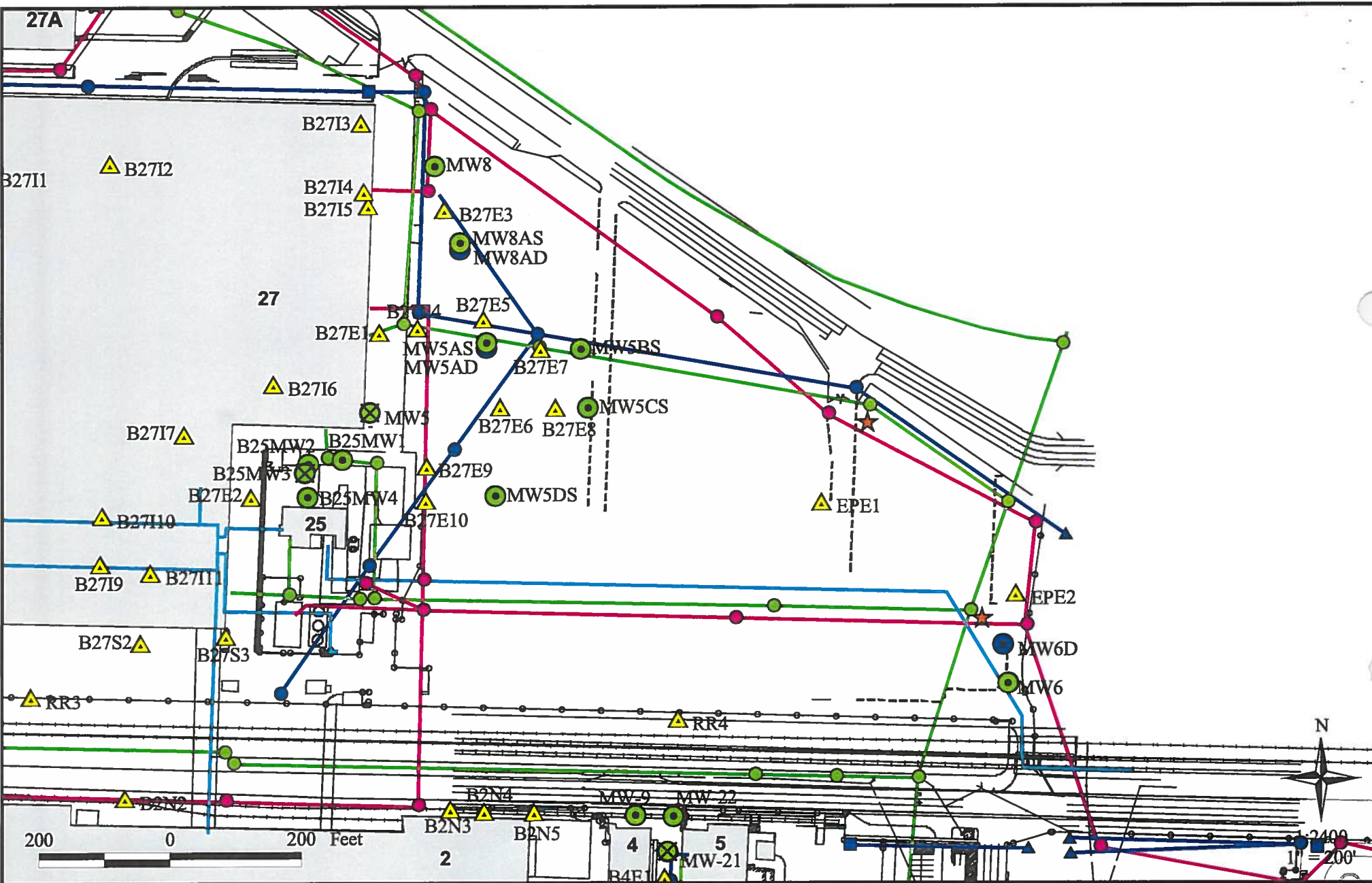
MACTEC, Inc.

Drawn: EJW Q.A.:

Reviewed:

6/27/2003

Figure 3:  
Proposed Soil Boring Location  
Buildings 1 & 2  
Boeing Tract 1 South



Legend

- |                   |                         |         |                  |
|-------------------|-------------------------|---------|------------------|
| Shallow Well      | Boring                  | Manhole | Industrial Sewer |
| Intermediate Well | Abandoned Shallow Well  | Intake  | Sanitary Sewer   |
| Deep Well         | Proposed Shallow Boring | Outflow | Storm Sewer      |
|                   |                         |         | Steam Line       |



Drawn: EJW Q.A.: Reviewed: 6/27/2003

Figure 4:  
Proposed Boring Locations  
West Parking Lot  
Boeing Tract 1 North